

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A vaporizer for vaporizing an ion source for ionizing a solid source to deliver the vaporized source into an ionization chamber of an ion implantation apparatus, comprising:

a nozzle having a gas inlet port formed in upward orientation, said gas inlet port being located a predetermined distance downward from an upper end of an inner surface of a crucible for vaporizing the solid source therein, said predetermined distance being determined so that the vaporized source is delivered from the crucible to the ionization chamber through the gas inlet port of the nozzle even though a pressure difference between the crucible and the ionization chamber is small.

Claim 2 (Currently Amended): A vaporizer ~~for an ion source~~ according to claim 1, wherein said predetermined distance of said gas inlet port from the upper end of the inner surface of ~~[[said]]~~ the crucible is approximately 1.1 mm when ~~[[said]]~~ the crucible has an inner diameter of 26 mm.

Claim 3 (Currently Amended): A vaporizer ~~for an ion source~~ according to claim 1,

wherein said solid source is arsenic.

Claim 4 (Currently Amended): A vaporizer for vaporizing an ion source for ionizing a solid source to deliver the vaporized source into an ionization chamber of an ion implantation apparatus, comprising:

a nozzle having a plurality of gas inlet ports formed in an upper portion of a crucible for vaporizing the solid source therein, the number of the gas inlet ports being determined so that the vaporized source is delivered from the crucible to the ionization chamber through the gas inlet ports of the nozzle even though a pressure difference between the crucible and the ionization chamber is small.

Claim 5 (Currently Amended): A vaporizer ~~for an ion source~~ according to claim 4, wherein the number of ~~said plurality of~~ the gas inlet ports is two.

Claim 6 (Currently Amended): A vaporizer ~~for an ion source~~ according to claim 5, wherein ~~[[said]] the nozzle formed with said~~ includes the two gas inlet ports ~~[[is]]~~ branched from ~~[[the]] a~~ center of ~~[[said]] the~~ crucible such that ~~[[said]] the~~ two gas inlet ports are symmetrically formed at approximately 45 degrees to ~~[[the]] a~~ vertical central axis of ~~[[said]] the~~ crucible.

Claim 7 (Currently Amended): A vaporizer ~~for an ion source~~ according to claim 4,

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wherein said solid source is arsenic.